

I claim:

1. A method for preventing dropped rods in a nuclear power plant, said nuclear power plant having a plurality of coils, each of said coils configured to provide magnetic flux to operate any one of a variety of interconnected mechanical parts; said method comprising the steps of :

providing a constant electrical flow within said coils;

measuring a characteristic of said flow through said device;

establishing a set point for said characteristic;

monitoring electrical flow to determine if said characteristic varied below said set point;

signaling a logic sequence to identify when a fault in electrical flow has been detected;

and

engaging a signaling system to announce when said fault has been detected.

2. The method of claim 1 wherein said characteristic to be measured is induced electromotive force.

3. The method of claim 1 wherein said characteristic to be measured is the current.

4. The method of claim 1 further comprising the steps of providing a timed delay between receiving a first fault signal and producing a second fault signal.

5. In a nuclear reactor rod control system having a plurality of moving mechanisms for inserting and withdrawing a plurality of control rods, said moving mechanisms controlled by a plurality of phase controlled multiphase alternating current power supply with each of the respective phases independently controlled to provide a regulated energizing current to said moving mechanisms, a control system comprising:

a bridge voltage monitor functionally connected to a coil voltage monitor; said bridge voltage monitor configured to provide a set point to individual coil monitors;

said coil voltage monitors each having a logic and regulating system, said coil voltage monitor configured to detect open coil circuits and to send an alarm signal when an open coil circuit is sensed, said coil voltage monitor further configured to be reset when said alarm is recognized; and

a fault indicating device comprised of a logic controller and an indicating device, said fault indicating device configured to receive an input signal from said alarm and to activate said indicating device so as to display the location of an open circuit.

a regulating device comprised of a logic controller and an alignment device; said regulating device configured to receive signal input from said coil voltage monitors, to process input to determine if a designated criteria is met, and to activate an alignment device, said alignment device configured to align and configure designated moving mechanisms into specified positions and orientations according to a preprogrammed protocol.

6. The control system of claim 5 wherein said coil voltage monitor is a coil simulator, said coil simulator configured to simulate an inductor.

7. The control system of claim 5 wherein said alignment device is configured to activate a gripping device so as to grasp and hold a designated rod when a fault is detected by a coil monitoring circuit near said rod.

8. A system for detecting errors at individual loads in a nuclear power plant system having a plurality of control rods said system comprising:

a stationary gripper, configured to hold a control rod in a desired position and orientation said stationary gripper having a coil configured to ;

a moving gripper, configured to grasp a control rod while a control rod is moved from one location to another, said moving gripper having a coil configured to ;

a lift, said lift further comprising a coil, said coil configured to provide magnetic flux to operate mechanical parts which connect with other ;

a bridge voltage monitor functionally connected to a coil voltage monitor; said bridge voltage monitor configured to provide a set point to individual coil monitors;

said coil voltage monitors each having a logic and regulating system, said coil voltage monitor configured to detect open coil circuits and to send an alarm signal when an open coil circuit is sensed, said coil voltage monitor further configured to be reset when said alarm is recognized;

a fault indicating device comprised of a logic controller and an indicating device, said fault indicating device configured to receive an input signal from said alarm and to activate said indicating device so as to display the location of an open circuit; and

a regulating device comprised of a logic controller and an alignment device; said regulating device configured to receive signal input from said coil voltage monitors, to process input to determine if a designated criteria is met, and to activate an alignment device, said

alignment device configured to align designated moving mechanisms into specified positions according to a pre-designated protocol.